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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS

In re application: Bruce J. Serbin et al.)	
)	
Serial No: 10/092,984)	Examiner: Edwin A. Leon
)	
Filed: March 7, 2002)	Group Art Unit: 2833
)	
For: Electrical Connection)	Attorney Docket: DP-301646

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on: November 29, 2004.


Noelle Constantinou

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

APPELLANT'S BRIEF

On September 28, 2004, appellants filed a Notice of Appeal of the Final Rejection in the Final Office Action of June 29, 2004 of claims 2, 15, 18 and 19.

The Commissioner is hereby authorized to charge \$330.00 to Deposit Account No. 50-0831 to cover the requisite fee for filing this Brief. The Commissioner is also authorized to charge any deficiency or credit any excess to Deposit Account No. 50-0831.

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(1) Real Party in Interest

Delphi Technologies, Inc., the assignee is the real party in interest.

(2) Related Appeals and Interferences

There are no other appeals and/or interferences known to appellants, their assignees and/or legal representatives which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

Claims 2, 15, 18 and 19 are finally rejected. Claims 3, 4, 6-13 and 20 are allowed. Claims 1, 5, 14, 16 and 17 are cancelled.

(4) Status of Amendments

There are not any pending amendments.

(5) Summary of Invention

The crimping of a terminal to a stranded wire to form a solderless electrical connection is known. The terminal typically has two wings which project laterally outward and in opposite directions from one-another. The wings are wrapped about the stranded wire and the distal edge of each wing is curled back and embedded in the stranded wire. Stranded wire cannot be used in some application, such as a circuit board application, because of its tendency to flex creating potential shorts with nearby electrical components unless the stranded wire is insulated. This increases the size of the stranded wire and the expense of its manufacture.

For some applications, such as a circuit board application, male pins or solid conductors are preferred over stranded wires because of their reduced size and rigidity which eliminates the need for insulation. Unfortunately, the curled wings of the terminals do not embed in the solid core when the terminal is crimped to the solid conductor as the curled wings do when a terminal is crimped to a stranded wire. Consequently, in the past it has been necessary to solder or sonic weld the terminal to the solid conductor after the terminal was crimped to the solid conductor. Soldering or sonic welding is labor intensive, expensive, and often requires specific metals and/or platings to secure the electrical connection.

This invention provides an electrical connection and a method of making an electrical connection to an elongated solid conductor that does not require soldering or sonic welding after the terminal is crimped to the solid conductor.

In reference to figures 1-6 of the patent application, an electrical connection of the invention comprises an elongated solid conductor (24) having a longitudinally extending groove (26) and a terminal (22) having at one end a base portion (37), a first wing (32) and a second wing (33). The base portion (37) engages the solid conductor (24). The first and second wings (32, 33) project laterally outward and in opposite directions from the base portion (37). The first wing (32) and the second wing (33) curl about the solid conductor (24) and project into the groove (26). The first wing (32) and the second wing (33) engage each other within the groove (26) to resist spring-back of the first and second wings (32, 33). The terminal (22) has a portion at the opposite end (inside receptacle 61) for mating with another conductor. The elongated solid conductor (22) is of one piece construction, and the first wing (32) and the second wing (33) curl solely about the elongated solid conductor (22) of one piece construction as shown in figures 5 and 6.

The elongated solid conductor (24) preferably has a portion (30) with a V-shaped cross section that provides the longitudinally extending groove (26) as shown in figure 3.

The invention also includes a method of making an electrical connection comprising providing an elongated solid conductor (24) of one piece construction having a longitudinally extending groove (26) providing a terminal (22) having at one end a base portion (37), a first wing (32) and a second wing (33) that project laterally outward and in opposite directions from the base portion and at an opposite end a portion (inside receptacle 61) for mating with a second conductor,

engaging the base portion (19) with the solid conductor (24), and curling the first wing (32) and the second wing (33) solely about the solid conductor (24) of one piece construction so that the ends of the first wing (32) and the second wing (33) project into the groove (26) and engage each other within the groove to resist spring-back of the first and second wings.

(6) Issues

1. Are article claims 2 and 18 anticipated by U.S. Patent 3,182,282 (Turner) under 35 U.S.C. § 102(b)?
2. Is method claim 15 anticipated by U.S. Patent 3,182,282 (Turner) under 35 U.S.C. § 102 (b)?
3. Is article claim 19 patentable over U.S. Patent 3,182,282 (Turner) under 35 U.S.C. §103(a) in light of *In re Dailey*, 149 USPQ 47 (CCPA, 1976)?

(7) Grouping of Claims

1. Article claims 2 and 18 which are rejected as anticipated by U.S. Patent 3,182,282 (Turner) under 35 U.S.C. 102(b) stand or fall together insofar as this rejection is concerned.
2. Method claim 15 which is also rejected as anticipated by U.S. Patent 3,182,282 (Turner) under 35 U.S.C. § 102 (b) stands alone.
3. Article claim 19 which is rejected as obvious over U.S. Patent 3,182,282 (Turner) under 35 U.S.C. §103(a) in light of *In re Dailey*, 149 USPQ 47 (CCPA, 1976) stands alone.

(8) Argument

Claims 2, 15 and 18 are rejected under 35 USC § 102 as anticipated by U.S. Patent No. 3,182,282 to Turner, hereafter Turner.

Turner discloses an electrical connection comprising an electrical blade contact (1) that is attached to an insulated conductor (3) having a stranded wire core¹ in a rather conventional manner as shown in figure 1 of the Turner patent. The attachment is then over-molded to form a common household plug shown in figures 12 and 13.

The Turner electrical contact blade (1) per se, which is shown in figures 2, 3, 4, 5 and 6, comprises a contact portion (4) (constituting about one half of the electrical contact blade (1) and a shank portion (17) (constituting the remaining half of the electrical contact blade (1). The shank portion (17) is used for attaching the electrical contact blade (1) to the insulated conductor (3) as shown in figures 1, 7 and 8.

The contact portion (4) is a folded construction as best shown in figures 2, 3, 4 and 5.

The shank portion (17) as best shown in figures 2, 3, 4 and 6 includes a U-shaped base section (19) and a series of spaced apart pairs of fingers (21a, 21b, 21c and 21d). The fingers (21a-21d) are curled over toward each other (as shown by way of example for fingers 21b in Fig. 8), to pierce the insulation of the insulated conductor (3) and form a ferrule with a traverse gap (23) disposed between each adjacent pair of fingers. (Turner specification column 3, lines 65-71). To help assure an effective insulation piercing connection between the contact blade (1) and the insulated conductor (3), the bight part of base section (19) is formed with a series of four insulation piercing ridges or notches (27a-27d), respectively, which together form a corrugated surface. (Turner specification column 4, lines 27-32). The ridges (27a-27d) are beneath the respective pairs of fingers (21a-21d) to assure insulation piercing and engagement with the multi-stranded conductive core (unnumbered) of the insulated conductor (3) as best shown in figure 9. The fingers (21a-21d) vary in length while the fingers (121a-121d) in the alternate embodiment shown in figures 10 and 11 are all the same length.

¹ See column 5, lines 2-5, "the conductor 3, during the crimping operation the transverse gaps allow the insulation material surrounding the conductive strands"

The rejection of article claims 15 and 18 under 35 USC § 102 as anticipated by Turner is set forth below verbatim:

With regard to claims 15 and 18, Turner discloses an electrical connection comprising: an elongated solid conductor (4) having a longitudinally extending groove (Fig. 5, groove in which 7 enters, Fig. 8, groove in which 21a-d enter); and a terminal (17) having a base portion (19), a first wing (21-a-d) and a second wing (21-a-d), the base portion (19) engaging the solid conductor (4), the first and second wings (21-a-d) projecting laterally outward and in opposite directions from the base portion (19), the first wing (21-a-d) and the second wing (21-a-d) curling about the solid conductor (4) and projecting into the groove (Fig. 5, groove in which 7 enters, Fig. 8, groove in which 21a-d enter), the first wing (21-a-d) and the second wing (21-a-d) engaging each other within the groove (Fig. 5, groove in which 7 enters, Fig. 8, groove in which 21a-d enter) to resist spring-back of the first and second wings, the terminal (17) having a portion (Fig. 7) at the opposite end for mating with another conductor (3), the elongated solid conductor (4) being of one piece construction and the first wing (21-a-d) curling solely about the elongated solid conductor (4) of one piece construction. The method limitations are deemed inherent and are rejected as shown above. See Figs. 1-9.

The rejection of article base claim 18 under 35 USC § 102 as anticipated by Turner cannot stand.

Base claim reads on the patent application disclosure as follows:

18. An electrical connection comprising:
 - an elongated solid conductor (24) having a longitudinally extending groove (26);
 - a terminal (22) having at one end a base portion (37), a first wing (32) and a second wing (33),
 - the base portion (37) engaging the solid conductor (24),
 - the first and second wings (32, 33) projecting laterally outward and in opposite directions from the base portion (37),
 - the first wing (32) and the second wing (33) curling about the solid conductor (24) and projecting into the groove (26),
 - the first wing (32) and the second wing (33) engaging each other within the groove (26) to resist spring-back of the first and second wings (32, 32),

the terminal (22) having a portion at the opposite end (inside receptacle 61) for mating with another conductor,

the elongated solid conductor (22) being of one piece construction, and
the first wing and the second wing (32 and 33) curling solely about the elongated solid conductor (22) of one piece construction.

In rejecting article base claim 18, the Examiner attempts to read article claim 18 on the Turner electrical contact blade (1) per se and ignore the associated insulated conductor (3), as shown in the attached chart A.

The Examiner first reads the “elongated solid conductor having a longitudinally extending groove” of article claim 18 on the entire Turner electrical contact blade (1) by including “Fig. 8 in which 21a-d enter” as part of the longitudinally extending groove.

The Examiner then reads the “terminal having at one end a base portion, a first wing and a second wing” on the shank portion (17) of the Turner electrical contact blade (1). But the shank portion (17) or at least the base (19) of the shank portion (17) has already been used to provide part of “the longitudinally extending groove”, that part in “Fig. 8 in which 21a-d enter”. Thus the Turner reference either does not disclose an elongated solid conductor as required by claim 18 or the Turner reference does not disclose a terminal as required by claim 18.

This double inclusion of base (19) to meet two different claim elements is very clear when the Examiner reads “the base portion engaging the solid conductor” on the Turner base (19) which according to the Examiner’s reading is a part of both the elongated solid conductor that provides the longitudinally extending groove and a part of the terminal that has a base. In effect, the Examiner is holding that the Turner base portion (19) (part of the claimed elongated solid conductor) engages the Turner base portion (19) (part of the claimed terminal). In other words the Turner base portion (19) engages the Turner base portion (19). This is an absurd interpretation of claim 18.

The attempt to read claim 18 on the Turner electrical contact blade (1) per se really breaks down when the Examiner tries to find a portion of the electrical contact blade (1) to correspond to “the terminal having a portion at the opposite end for mating with another conductor”. Here the Examiner merely refers to shank portion (17) and an unspecified portion illustrated in figure 7.

Claim 18 concludes with “the first wing and the second wing curling solely about the elongated solid conductor of one piece construction”. The Examiner reads this

element on the Turner reference as follows “the first wing (21 a-d) and the second wing (21 a-d) curling *solely* about the elongated solid conductor (4) of one piece construction.” (Emphasis added) Figure 8 of the Turner patent clearly shows that the wings (21b) curl about the insulated conductor (3) not contact portion (4) and that the wings penetrate the insulation of conductor (3) and engage the stranded core inside the insulation. Hence, the Turner patent clearly does not disclose “the first wing and the second wing curling *solely* about the elongated solid conductor of one piece construction.

“For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference”...*In re Bond*, 910 F.2D 831, 15USPQ2d 1566 (Fed. Cir. 1990)

Since, the Turner patent does not disclose several of the claim elements as demonstrated above, article claim 18 is not anticipated by the Turner patent.

This also applies to dependent article claim 2.

Method claim 15 does not fall with article claims 2 and 18 because method claim steps are inherently different than article claim elements which do not take method steps into account.

As stated above, method claim 15 is rejected verbatim as follows:

“The method limitations are deemed inherent and are rejected as shown above. See Figs. 1-9.”

With regard to method claim 15, the Examiner has not even attempted to make out a prima facie case.

Method claim 15 reads as follows:

A method of making an electrical connection comprising:

providing an elongated solid conductor of one piece construction having a longitudinally extending groove;

providing a terminal having at one end a base portion, a first wing and a second wing that project laterally outward and in opposite directions from the base portion and at an opposite end a portion for mating with a second conductor,

engaging the base portion with the solid conductor,

curling the first wing and the second wing solely about the solid conductor of one piece construction so that the ends of the first wing and the second

wing project into the groove and engage each other within the groove to resist spring-back of the first and second wings.

With regard to method claim 15, applicant maintains that any inherent method of making an electrical connection disclosed in the Turner reference does not “provide an elongated solid conductor of one piece construction having a longitudinally extending groove”. The Turner electrical contact blade (1) is not “an elongated solid conductor of one piece construction having a longitudinally extending groove” within the context of claim 15. If the Turner contact blade (1) is construed to be the “elongated solid conductor of one piece construction having a longitudinally extending groove” within the context of claim 15, then any inherent method of making the electrical connection disclosed in the Turner reference “does not provide a terminal, etc.” as required by the second step of method claim 15.

Either way, any inherent method of making the electrical connection disclosed in the Turner patent does not “engage the base portion (of the terminal) with the solid conductor” as required by the method claim 15 because it is not possible to engage one thing with itself.

Finally, any inherent method of making the electrical connection of the Turner reference does not “curl the first wing and the second wing solely about the solid conductor of one piece construction.” As clearly shown in figure 8 of the Turner reference, the wings (21a-d) are curled about the insulated conductor (3) that has a stranded wire core.

The rejection of claim 19 under 35 USC § 103 as obvious in view of Turner also cannot stand.

The rejection of claim 19 is improper for at least three reasons. First, the Turner patent does not disclose or suggest a terminal that engages a solid conductor as pointed out above. Secondly, the shank portion (17) of Turner electrical contact blade that the Examiner erroneously regards as the claimed portion (of the claimed elongated solid conductor) with a V-shaped cross section is not part of an elongated solid conductor as pointed out above. Thirdly a prima facie case of obviousness has not been made out. The Examiner has not stated any reason why any V-shaped groove of an elongated solid conductor is obvious in view of the U-shaped base portion (19) of the Turner shank portion (17). The Examiner has merely cited a per se rule of the *Dailey* case.

"The use of *per se* rules, while undoubtedly less laborious than a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art flouts section 103 and the fundamental case law applying it." *In re Ochiai*, 37 USPQ2d 1127 (Fed. Cir. 1995).

It is not incumbent upon applicant to show the significance of the V-shaped groove in the elongated solid conductor. It is incumbent upon the Examiner to make out a *prima facie* case of obviousness. The Examiner has failed to make out such a case. Consequently claim 19 must be considered patentable under 35 USC § 103.

SUMMARY

The final rejection of each of the appealed claims 2, 15, 18 and 19 cannot stand. Claims 1, 15 and 18 define patentable subject matter over the cited reference under §102 and claim 19 defines patentable subject matter over the cited references under §103. Accordingly, it is respectfully requested that the final rejection of these claims be reversed and that claims 2, 15, 18 and 19 be allowed in the absence of any more pertinent prior art.

Respectfully submitted,

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APPENDIX

The following claims 2, 15, 18 and 19 are on appeal:

- 2. The electrical connection set forth in claim 18 comprising:**
an outer surface of the terminal carried by the base portion, the first wing and the second wing; and
the outer surface having a first distal edge portion carried by the first wing and disposed within the groove and a second distal edge portion carried by the second wing and disposed within the groove, the first and second distal edge portions being engaged to prevent spring-back of the first and second wings out of the groove.
- 15. A method of making an electrical connection comprising:**
providing an elongated solid conductor of one piece construction having a longitudinally extending groove;
providing a terminal having at one end a base portion, a first wing and a second wing that project laterally outward and in opposite directions from the base portion and at an opposite end a portion for mating with a second conductor,
engaging the base portion with the solid conductor,
curling the first wing and the second wing solely about the solid conductor of one piece construction so that the ends of the first wing and the second wing project into the groove and engage each other within the groove to resist spring-back of the first and second wings.
- 18. An electrical connection comprising:**
an elongated solid conductor having a longitudinally extending groove;
a terminal having at one end a base portion, a first wing and a second wing,
the base portion engaging the solid conductor,

the first and second wings projecting laterally outward and in opposite directions from the base portion,

the first wing and the second wing curling about the solid conductor and projecting into the groove,

the first wing and the second wing engaging each other within the groove to resist spring-back of the first and second wings,

the terminal having a portion at the opposite end for mating with another conductor,

the elongated solid conductor being of one piece construction, and

the first wing and the second wing curling solely about the elongated solid conductor of one piece construction.

19. The electrical connection as defined in claim 18 wherein the elongated solid conductor has a portion with a V-shaped cross section that provides the longitudinally extending groove.

CLAIM CHART A

An electrical connection comprising: an elongated solid conductor having a longitudinally extending groove;	An elongated solid conductor (4) having a longitudinally extending groove (Fig. 5 in which 7 enters, Fig. 8 in which 21a-d enter)
a terminal having at one end a base portion, a first wing and a second wing,	Terminal (17) having a base portion (19) ¹ , a first wing (21a-d) and a second wing (21a-d)
the base portion engaging the solid conductor,	the base portion (19) engaging the solid conductor (4) ²
the first and second wings projecting laterally outward and in opposite directions from the base portion,	first and second wings (21a-d) projecting laterally outwardly and in opposite directions from the base portion (19)
the first wing and the second wing curling about the solid conductor and projecting into the groove,	the first wing (21a-d) and the second wing (21a-d) curling about the solid conductor (4) and projecting in the groove (Fig. 5 groove in which 7 enters, Fig. 8 groove in which 21a-d enter)
the first wing and the second wing engaging each other within the groove to resist spring-back of the first and second wings,	the first wing (21 a-d) and the second wing (21 a-d) engaging each other within the groove (Fig. 5 groove in which 7 enters, Fig. 8 groove in which 21a-d enter) to resist-spring back of the first and second wings
the terminal having a portion at the opposite end for mating with another conductor,	The terminal (17) having a portion (fig. 7) ³ at the opposite end for mating with another conductor (3).
the elongated solid conductor being of one piece construction, and	The elongated solid conductor (4) being of one piece construction
the first wing and the second wing <i>curling solely about</i> the elongated solid conductor of one piece construction.	The first wing (21a-d) and the second wing (21a-d) <i>curling solely about</i> the elongated solid conductor (4) of one piece construction ⁴

¹ Base portion (19) is already a part of the longitudinally extending groove (... Fig. 8, in which 21 a-d enter) which is a part of the elongated solid conductor.

² The base portion engages the solid conductor which includes the base portion. In effect, the base portion engages the base portion!!!!

³ The portion of figure 7 is not specified.

⁴ The first wing (21 a-d) and the second wing (21 a-d) clearly **do not** curl **solely** about the elongated conductor (4) as clearly shown in Fig. 8 of the Turner reference which shows that the wings 21 (a-d) curl about the insulated stranded wire conductor (3).